

of acclimatization that will be followed by a rapid spread. It seems to be the part of wisdom to attack the problem at present when it can be so readily disposed of.

Many additional and similar examples can readily be cited to prove that it is folly to allow a new plant with dangerous weed characteristics to spread without attempting eradication before it is too late. The Austrian field cress problem surely deserves the "ounce of prevention."

Radical measures are as necessary against a new weed problem of this character as are needed in dealing with insect and fungus pests. The cost of exterminating the Austrian field cress under present conditions should not be over five hundred dollars and it is believed that the investment will be a very wise one. The federal government has spent many thousands of dollars in attempts to eradicate such new agricultural pests as the corn borer and the Japanese beetle. The Austrian field cress problem now offers an opportunity to prevent possible great losses by the investment of a very modest sum. It is an opportunity that should not be neglected.

FIG. 1. AUSTRIAN FIELD CRESS.

Roripa austriaca Spach.

Sketch made from specimens collected at New Milford, New York.

Contribution from the Botanical Department of the Purdue University Agricultural Experiment Station.

SOME OVERLOOKED SCROPHULARIACEAE
OF RAFINESQUE

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In preparing my reviews of the family Scrophulariaceae in the "Local Flora" * and in the Southeastern United States † the endeavor was made to include all species of this family ever described from these two areas. Once for all I wished to produce this history, so that the application of each name might be duly explained and the goodly proportion of excess names be honor-

* Torreya 19: 107-119; 143-152; 161-171; 205-216; 235-242. 1919.

† Proc. Acad. Nat. Sci. Philadelphia 71: 224-291. 1920.

ably laid away and forgotten. Consequently it is quite annoying to discover that from both regions a considerable number of names have been omitted. It seems necessary to make a brief historical supplement to be added jointly to my two papers.

The cause of the omission of these well-described species, all of Rafinesque, is that they were described in works so rare, at least in Europe, that they were not seen by the compilers of the Index Kewensis, that marvellous summary of plant-names. Of course, many other species and genera of Rafinesque have been overlooked beside these few Scrophulariaceae. The only large work of his not catalogued is the Autikon, and of the genera in it I am publishing a list in the Bulletin of the Torrey Club. The following Scrophulariaceae, excepting the last, are all from that work, and were published in 1840 under the serial numbers given, and on the pages whose numbers follow in parentheses. I quote Rafinesque's notes of occurrence, and add explanations and comments.

(1) AUTIKON BOTANIKON (1840)

319. *Gratiola callosa* Raf. (p. 42).

"Florida found by Baldwin." A synonym of the common species of the long-leaf pine-land, *G. ramosa* Walt., agreeing with the typical state in absence of bractlets beneath calyx.

320. *Gratiola odorata* Raf. (p. 43).

"*Virginica* L. O[mnes]. Easily known by the fine smell like Jessamine, all over N. Amer." A synonym of the wide-spread *G. neglecta* Torr., 1819, formerly by all ("omnes") called *G. virginiana*.

323. *Gratiola heterophyla* Raf. (p. 43).

"New Jersey to Florida." A small form of *G. neglecta* Torr., 1819.

325. *Ambulia rigida* (Raf.) Raf. (p. 43).

With his own *Gratiola rigida* (Atl. Jour. 176. 1833) from Arkansas or Texas, Rafinesque quite correctly identified the older *G. acuminata* Walt., 1788, and, because both possessing all four stamens fertile, he transferred them to the Oriental genus *Ambulia* Lam. The plant is *Mecardonia acuminata* (Walt.) Small. He now describes four varieties:

326. var. *obovata* Raf. (p. 43).

"Mts. Unaka," North Carolina. The largest inland mountain form.

✓ 327. var. *microphylla* Raf. (p. 43).

"Florida." Leaves smaller and pedicels shorter. Obviously the plant which I have called *Mecardonia acuminata brevifolia* (in Proc. Acad. Nat. Sci. Phila. 71: 237. 1920), which thus becomes ***M. acuminata microphylla* (Raf.) Pennell, comb. nov.**

✓ 328. var. *cuneata* Raf. (p. 44).

"Carol [ina]. Alab [ama]." A form of the species.

✓ 329. var. *angustifolia* Raf. (p. 44).

"Florida." Leaves linear, oblong and pedicels long. A form of the species.

✓ 330. *Ambulia micrantha* (Nutt.) Raf. (p. 44).

"*Gratiola* do.[*micrantha*] Baldw.....Florida, disc. by Baldwin." Baldwin's specimen was labeled "*Gratiola micrantha*," a name published by Nuttall in 1822. Rafinesque clearly described the same species, and his name with Nuttall's must pass into the synonymy of *Scoparia dulcis* L.

✓ 331. *Ambulia?* *psilosa* Raf. (p. 44).

"*Gratiola* 4gona El. his own specimens yet not answering to his description." Rafinesque redescribes Elliott's plant, noting such characteristic features as the obovate or oblong (rather than "lanceolate") leaves and the slightly oblique capsule. With Elliott's *Gratiola tetragona* 1816, this becomes a synonym of *Ilysanthes dubia* (L.) Barnhart.

✓ 332. *Macuillamia rotundifolia* (Michx.) Raf. (p. 44).

"*Monnieria*, and *Herpestis* do. auct.....Illinois. . . . This G[enus] was established by me in Neogen. 16, year 1825." This earlier publication was not typifiable, no species being cited. But now three are given, the first, by adapted description and also mention Illinois, definitely based upon *Monnieria rotundifolia* Michx., 1803, from that state. In the Proc. Acad. Nat. Sci. Phila. 71:242. 1920. I have used a later generic name *Ranapalus* Kellogg, 1877, for the group to which this species pertains. This must lapse into synonymy, and *R. rotundifolius* (Michx.) Pennell give place to *Macuillamia rotundifolia* (Michx.) Raf.

✓ 333. *Macuillamia obovata* Raf. (p. 44).

"Virginia in the River Potomac and in Louisiana." Said to be larger than the preceding, to have leaves obovate or elliptic, sessile, and pedicels shorter than the leaves. Evidently a needed redescription of *M. rotundifolia* (Michx.), and based upon actual

material seen. The former locality sustains the label "Va." on an old specimen in the herbarium of Columbia University, and the plant should be sought in the Potomac Valley.

- ✓ 334. *Macuillamia amplexicaulis* (Michx.) Raf. (p. 44).

"Mon. . . . do auct. [= *Monnieria amplexicaulis* Michx.] Carol[ina] Florida." This name must be added to the synonymy of *Hydrotrida caroliniana* (Walt.) Small.

- ✓ 336. *Bazina nudiflora* Raf., gen. (p. 44) and sp. (p. 45) nov.

"*Lindernia grandiflora* Nutt. . . . Florida." Certainly this plant and so a synonym of *Ilysanthes grandiflora* (Nutt.) Benth. Rafinesque's specimen had the leaves "crowded," hence it was possible for him to err in supposing them sub-alternate. The pedicels are alternate.

- ✓ 338. *Ilysanthes brevipes* Raf. (p. 45).

"Allegh[any] Mts. of New Jersey and Pennsylv[ania]." Described as with leaves oblong, pedicels shorter than the leaves and flowers "white." Certainly the plant is *I. dubia* (L.) Barnhart, the flowers of which are frequently pale.

- ✓ 339. *Ilysanthes geniculata* Raf. (p. 45).

"Long Island and South New Jersey." Described as with leaves ovate, pedicels equaling the leaves, and flowers "incarnate." Occasional flowers of this genus may be pinkish, or even incarnate. Apparently the plant is *I. inaequalis* (Walt.) Pennell, although in that species the capsules are usually longer, not shorter than the calyx.

- ✓ 341. *Ilysanthes refracta* (Ell.) Raf. (p. 46).

This publication antedates *I. refracta* (Ell.) Benth., 1846.

- ✓ 342. *Ilysanthes dilatata* (Muhl.) Raf. (p. 46).

Based upon *Lindernia dilatata* Muhl., 1816. The name therefore passes into the synonymy of *I. inaequalis* (Walt.) Pennell.

- ✓ 343. *Ilysanthes anagallidea* (Michx.) Raf. (p. 46).

This publication much antedates *I. anagallidea* (Michx.) Robinson, 1908. This also is a synonym of *I. inaequalis* (Walt.) Pennell.

- ✓ 344. "Hemianthus micranthus" (p. 46).

Credited to Nuttall, and apparently an error for *H. micranthemoides* Nutt., 1817. It is unfortunate that the combination was not intentionally made, as it would have long antedated

my making of the transfer, *H. micranthus* (Pursh.) in Torreya 19:150. 1919.

1139. *Antirrhinum canadense assurgens* Raf. (p. 155).

"South New Jersey, Virg[inia]." A large-flowered form of *Linaria canadensis* (L.) Dum. -Cours.

1160. *Tursitis filifera* Raf. (p. 157).

"Louisiana, Alab[ama]." Evidently a form of *Kickxia Elatine* (L.) Dumort. *Tursitis Elatine* (L.) Raf., (p. 156), an introduced Palaearctic species.

1174. *Melampyrum lanceolatum* Raf. (p. 160).

"Mts. Alleghany, New Jersey to Kentucky." This is *M. lineare latifolium* (Muhl.) Beauverd.

1180. *Scrophularia pectinata* Raf. (p. 160).

"New Jersey and Long Island." The description of leaves ovate-lanceolate, acute at both ends, pectinately serrate or sinuately laciniate, apparently must apply to the species which we have known as *S. leporella* Bickn. It is unfortunate to replace the well-chosen name given by Mr. Bicknell in his classic study of our eastern Scrophularias (in Bull. Torrey Club 23:314-319. 1896), but his own action on page 315 therein, giving preference to the vaguely described *S. occidentalis* (Rydb.) would have made it impossible to retain the same. Before Mr. Bicknell's paper, no one had fully understood our species of figwort, and that Rafinesque did not is shown by his recognizing seven eastern species, based mainly upon leaf-outline, angling of stem, and differences of flower-color. All his species reduce to Mr. Bicknell's two: (A) *lepolella*, the plant of early summer, with leaves more sharply cut, narrowed or at least never cordate at base, the inflorescence longer and narrower, of a series of evident fascicles, the corolla more yellow, and the sterile filament yellow; and (B) *marylandica*, the plant of late summer, with leaves less cut, tending to cordate at base, the inflorescence more ample and lax, not so obviously in fascicles, the corolla browner, and the sterile filament purple-brown.

However, there is a still earlier name which needs reconsideration. Pursh (Fl. Am. Sept. 419. 1814), claimed to know living two species of *Scrophularia* in Pennsylvania. His contrast states: (a) *S. lanceolata*, with leaves lanceolate, unequally serrate, acuminate, at base acute, petioles bare, fascicles of the panicle corymbose: flowers greenish-yellow; "Aug. Sept."; and (b)

S. marylandica, with leaves cordate, serrate, acute, at base rounded, petioles ciliate below, fascicles of panicle laxly few-flowered; flowers greenish-brown; "June-Aug." Comparing both these descriptions with the brief summaries above, it is clear that leaf-form and serration, inflorescence and flower-color would indicate that (a) *lanceolata* is (A) *leptophylla*, and (b) is (B) *marylandica*. But the statements of flowering-season seem to indicate the reverse!

Granted that occasional variants of each species could approach the characterization of the opposite species in individual features, would not the assumption that Pursh had in both instances described such abnormal plants, and had from each drawn up a description actually more characteristic of its opponent species, be improbable or impossible? Much more likely he has, either on his labels or in the passage of his book through the press, simply transferred his data of season from species to species. That Pursh had present *leptophylla* is proven by his statement of months, for "June-Aug." is impossible for *marylandica*, while his description of his "early" plant with leaves cordate, etc., forces us to seek his *leptophylla* description under his other species, and to *lanceolata* it fits well!

Mr. Bicknell has argued that Pursh's *Scrophularia lanceolata* is applicable to some narrow-leaved form of *S. marylandica* L. But this would not remove the difficulty that the contrasting description is not of *leptophylla*, and under one caption or the other that plant must be accounted for. I regret that all efforts to discover Pursh's types have failed; they are not at the Philadelphia Academy of Natural Sciences, the British Museum, nor the University of Oxford.

To summarize, I adopt for our early summer figwort the name *Scrophularia lanceolata* Pursh, 1814, placing in its synonymy *S. pectinata* Raf., 1840, and *S. leptophylla* Bickn. 1896; and as a variety I establish *S. lanceolata occidentalis* (Rydb.) Pennell, comb. nov. (*S. nodosa occidentalis* Rydb. Contrib. U. S. Nat. Herb. 3:517. 1896).¹¹

✓ 1181. *Scrophularia lanceolata* Pursh (p. 160).

"New York to Virg[inia]." Supposed to be distinguished from *S. pectinata* Raf., by its stem acutely, not obtusely angled, and its leaves lanceolate, unequally and doubly serrate. These are variable characters in this species. Rafinesque appears to have correctly applied this name. See discussion above.

✓ 1182. *Scrophularia marilandica* L. (or *glaucha* Raf.) (p. 160).

"Canada to Carol[ina] differs from *pectinata* by leaves ovate or subcordate glaucous beneath, simply serrate petioles ciliolate, fl. paniculate purplish. . . ." Evidently is *S. marilandica* L., as now understood. See discussion above.

✓ 1186. *Scrophularia dimidiata* Raf. (p. 161).

"Carol[ina]. Florida." From description of leaves incisely serrate, and panicles remotely racemose, this may have been *S. lanceolata* Pursh. If so, the Florida record would be erroneous.

(2) AMERICAN MONTHLY MAGAZINE (vol. 3. 1818)

Limosella brachistema Raf., (p. 273).

"Dr. Ives of New Haven had discovered it [as well as had Mr. Nuttall]. . . . The figure given by Dr. Ives in the Transactions of the Physico Medical Society of New York is adequate to prove [it not *L. tenuifolia* of Europe]" Apparently based especially upon this plate and description of Ives, overlooking the fact that the latter had published the name *L. subulata* Ives (in Trans. Phys. Med. Soc. N. Y. 1:440. 1817.) A synonym of *L. subulata* Ives.

(3) SYNOPSIS OF ABOVE NAMES

This list gives the species recognized or to the synonymy of which Rafinesquian names are added. Numbers refer to the order in Autikon Botanikon.

GRATIOLA NEGLECTA Torr.

G. heterophyla Raf. 323.

G. odorata Raf. 320.

GRATIOLA RAMOSA Walt.

G. callosa Raf. 319.

HYDROTRIDA CAROLINIANA (Walt.) Small.

Macuillamia amplexicaulis (Michx.) Raf. 334.

ILYSANTHES DUBIA (L.) Barnh.

Ambulia psilosa Raf. 331.

Ilysanthes brevipes Raf. 338.

ILYSANTHES GRANDIFLORA (Nutt.) Benth.

Bazina nudiflora Raf. 336.

ILYSANTHES INAEQUALIS (Walt.) Pennell.

I. anagallidea (Michx.) Raf. 343.

I. dilatata (Muhl.) Raf. 342.

I. geniculata Raf. 339.

ILYSANTHES REFRACTA (Ell.) Raf. 341.

KICKXIA ELATINE (L.) Dumort.

Tursitis Elatine (L.) Raf. 1159.

T. filifera Raf. 1160.

LIMOSELLA SUBULATA Ives.

L. brachistema Raf. [end of list above].

LINARIA CANADENSIS (L.) Dum.-Cours.

Antirrhinum canadense assurgens Raf. 1139.

MACUILLAMIA ROTUNDIFOLIA (Michx.) Raf. 332.

M. obovata Raf. 333.

MECARDONIA ACUMINATA (Walt.) Small.

Ambulia rigida (Raf.) Raf. 325.

MELAMPYRUM LINEARE LATIFOLIUM (Muhl.) Beauverd.

M. lanceolatum Raf. 1174.

SCOPARIA DULCIS L.

Ambulia micrantha (Nutt.) Raf. 330.

SCROPHULARIA LANCEOLATA Pursh.

(?) *S. dimidiata* Raf. 1186.

S. leporella Bickn.

S. pectinata Raf. 1180.

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SHORTER NOTES

NOTES ON A GROWTH OF YOUNG WHITE BIRCH.

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There is an interesting stand of very young white birch on the cinder filled swamp area at the south end of Van Cortlandt Park, facing Broadway, New York City. These trees appear to be in the main exceptionally well-formed, typical specimens of the common white birch, *Betula populifolia*, having even in this young stage the characteristic pyramidal form. They all seem vigorous and well rooted and are growing nicely. Their distribution over the filled-in swamp area is rather irregular, in some places none and in others covering the ground as uniformly as in a cultivated plot.